

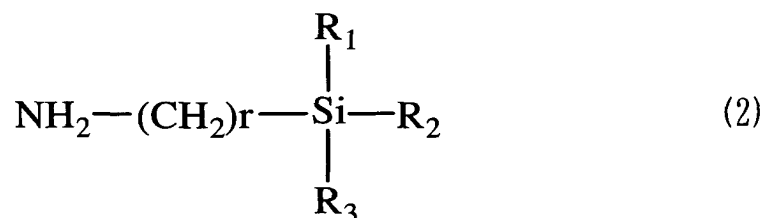
What is claimed is:

1. A substrate having a cross-linking reagent represented by the following general formula (1) bound thereonto by means of a coupling agent comprising an active group:



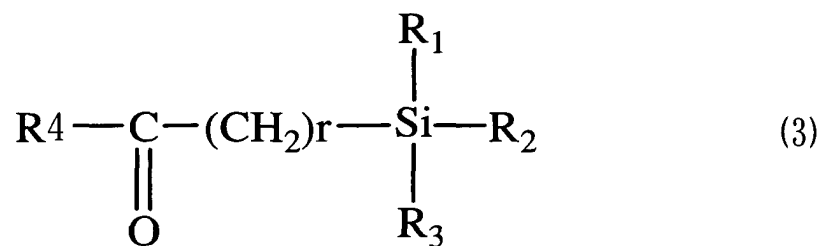
(wherein, A and B represent an identical or different group which reacts with an active group of the coupling agent comprising an active group, selected from an active ester group, isothiocyanate group, isocyanate group, imidazole group, carbodiimide group or aldehyde group, and wherein L is a linking group linking A and B, selected from a straight chain alkyl group, aryl group, allyl group or alkyl group having an amide group).

2. A substrate according to claim 1, wherein the coupling agent comprising an active group is a silane compound comprising an amino group, represented by the following formula (2):

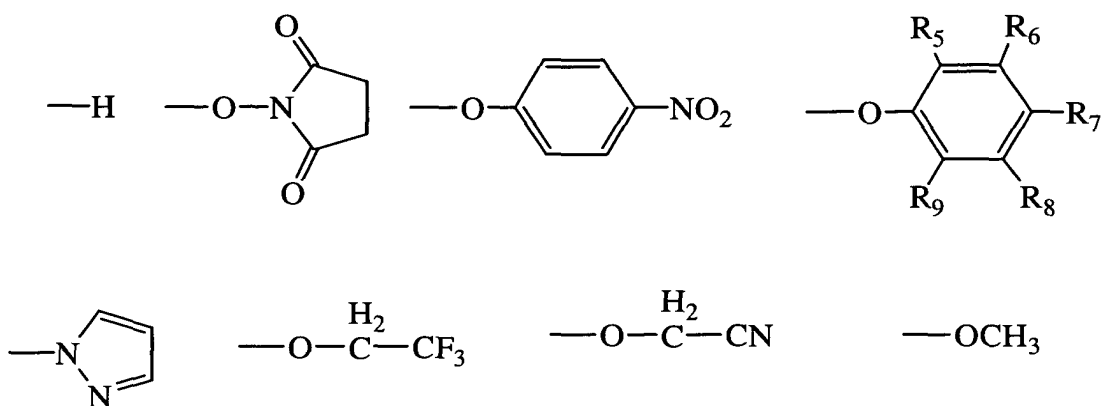


(wherein, R1, R2 and R3 represent an identical or different group being $-\text{O}(\text{CH}_2)_a\text{CH}_3$ or Cl, a represents an identical or different integer from 0 to 10, and r represents an integer from 0 to 10).

3. A substrate according to claim 1, wherein the coupling agent comprising an active group, is a silane compound comprising an amino group, represented by the following formula (3):

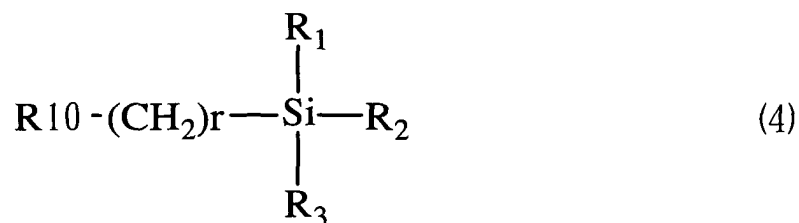


(wherein R4 represents any one of the following structures:

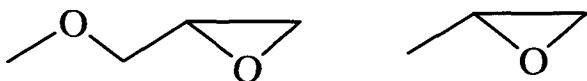


wherein, R5, R6, R7, R8 and R9 represent an identical or different atom being H, Cl or F).

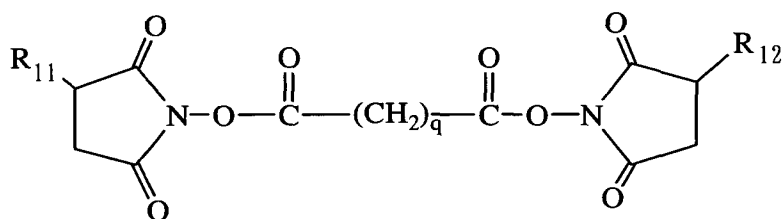
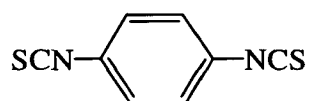
4. A substrate according to claim 1, wherein the coupling agent comprising an active group is a silane compound comprising an amino group, represented by the following formula (4):



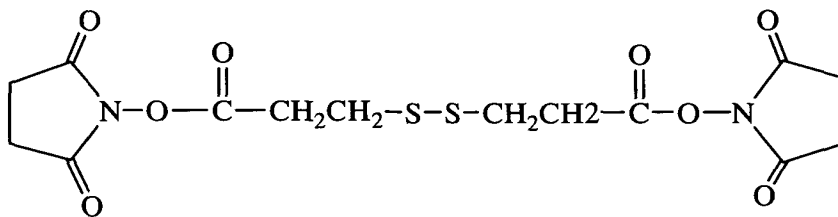
wherein R10 represents any one of the following structures:

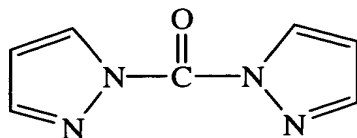


5. A substrate according to claim 1, wherein the cross-linking reagent A-L-B is any one of the following:



(wherein R11 and R12, represent an identical or different group being $-H$ or $-SO_3$)





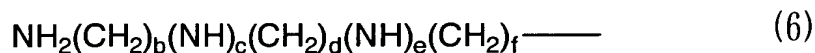
6. A substrate having a branching agent intramolecularly possessing 2 or more primary amino groups, bound thereto by means of the cross-linking agent of the substrate according to claim 1, represented by A-L-B of general formula (1).

7. A substrate according to claim 6, wherein the branching agent is a compound having 2 or 3 primary amino groups, which is represented by the following general formula (5):



(wherein, R₁₃, R₁₄ and R₁₅ represent an identical or different group selected from alkyl group having a primary amino group, alkyl group or hydrogen atom, provided that 2 or 3 are alkyl groups having a primary amino group).

8. A substrate according to claim 7, wherein R13, R14 and R15 of the general formula (5) are alkyl amino groups represented by the following general formula (6):

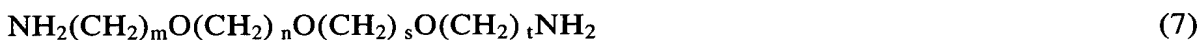


(wherein, b, d and f represent identical or different integers from 0 to 10, c and e represent integers from 0 to 1, provided that cases where b, d and f are all 0 is not included).

9. A substrate according to claim 6, wherein the branching agent is a polyamide dendrimer having a primary amino group.

10. A substrate having a straight chain linker intramolecularly possess 2 primary amino groups bound thereto by means of the cross-linking reagent of the substrate according to claim 1 represented by A-L-B of general formula (1).

11. A substrate according to claim 10, wherein the straight chain linker is a compound having 2 primary amino groups which is represented by the following general formula (7) or (8):



(wherein, m, n, s and t represent identical or different integers from 1 to 10)

12. A substrate having a cross-linking reagent of the following general formula (1) further bound thereonto by means of the branching agent intramolecularly possessing 2 or more primary amino groups according to claim 6:



(wherein, A and B represent an identical or different group which reacts with an active group of the coupling agent comprising an active group, selected from an active ester group, isothiocyanate group, isocyanate group, imidazole group, carbodiimide group or aldehyde group, and wherein L is a linking group linking A and B, selected from a straight chain alkyl group, aryl group, allyl group or alkyl group having an amide group).

13. A substrate for immobilization of a biological substance or medicament which has a biological substance or chemical substance, being an object of binding, immobilized thereon by means of the cross-linking agent of the substrate according to claim 1, represented by general formula (1) A-L-B.

14. A method of immobilizing a biological substance or medicament which comprises immobilizing a biological substance or chemical substance on the substrate according to claim 1.

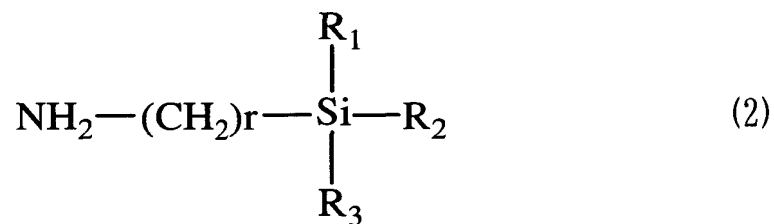
15. A method of coating a substrate which comprises reacting a coupling agent comprising an active group on a substrate, and then reacting a cross-linking reagent represented by the following formula:



(wherein, A and B represent an identical or different group which reacts with an active group of the coupling agent comprising an active group, selected from an active ester group, isothiocyanate group, isocyanate group, imidazole group, carbodiimide group or aldehyde group, and wherein L is a linking group linking A and B, selected from a straight chain alkyl group, aryl group, allyl group or alkyl group having an amide group).

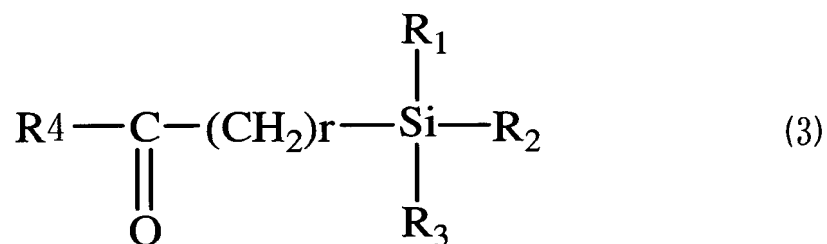
16. A method of coating a substrate according to claim 15, wherein the coupling agent comprising an active group is a silane compound comprising an amino group,

represented by the following general formula (2):

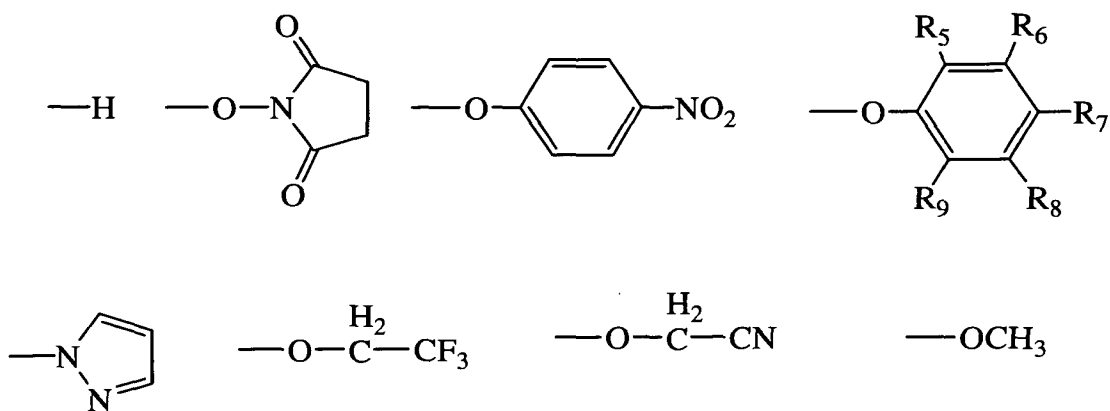


(wherein, R1, R2 and R3 represent an identical or different group being -O(CH₂)_aCH₃ or Cl, a represents an identical or different integer from 0 to 10, and r represents an integer from 0 to 10).

17. A method of coating a substrate according to claim 15, wherein the coupling agent comprising an active group, is a silane compound comprising an amino group, represented by the following general formula (3):

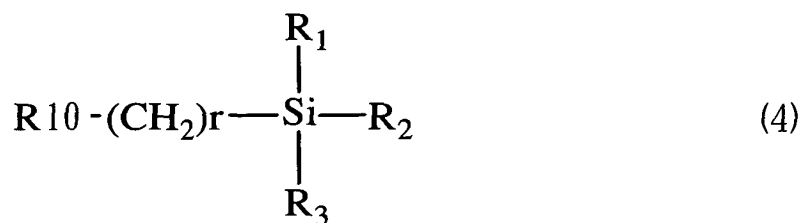


(wherein R4 represents any one of the following structures:



wherein, R5, R6, R7, R8 and R9 represent an identical or different atom being H, Cl or F).

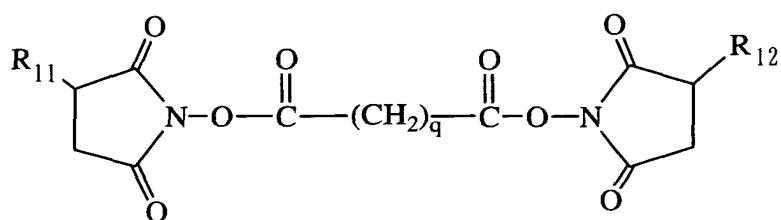
18. A method of coating a substrate according to claim 15, wherein the coupling agent comprising an active group is a silane compound comprising an amino group, represented by the following formula (5):



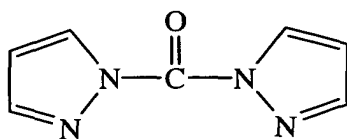
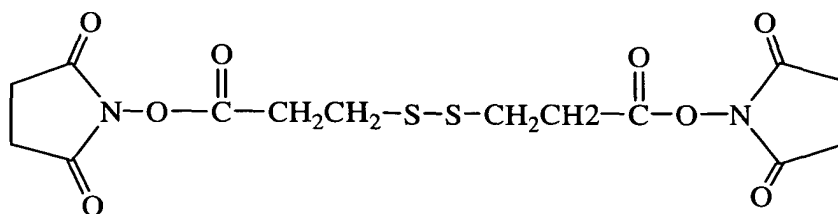
wherein R10 represents any one of the following structures:

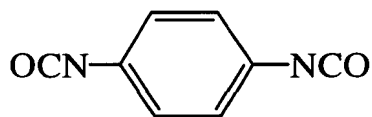


19. A method of coating a substrate according to claim 15, wherein the cross-linking reagent A-L-B is any one of the following:



(wherein R₁₁ and R₁₂, are identical or different group being -H or -SO₃)





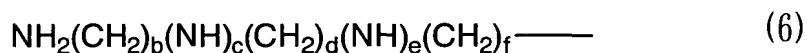
20. A coating method which comprises reacting a branching agent intramolecularly possessing 2 or more primary amino groups with the substrate according to claim 15.

21. A coating method according to claim 20, wherein the branching agent is a compound having 2 or 3 primary amino groups represented by the following general formula (5):



(wherein, R₁₃, R₁₄ and R₁₅ are an identical or different group selected from alkyl group having a primary amino group, alkyl group or hydrogen atom, provided that 2 or 3 are alkyl groups having a primary amino group).

22. A method of coating a substrate according to claim 21, wherein R₁₃, R₁₄ and R₁₅ of the general formula (5) are alkyl amino groups represented by the following general formula (6):



(wherein, b, d and f represent identical or different integers from 0 to 10, c and e represent integers from 0 to 1, provided that cases where b, d and f are all 0 is not included).

23. A method of coating a substrate according to claim 20, wherein the branching agent is a polyamide dendrimer having a primary amino group.

24. A method of coating a substrate which comprises further reacting a cross-linking reagent of the following general formula (1) with the substrate according to claim 21:



(wherein, A and B represent an identical or different group which reacts with an active group of the coupling agent comprising an active group, selected from an active ester group, isothiocyanate group, isocyanate group, imidazole group, carbodiimide group or aldehyde group, and wherein L is a linking group linking A and B, selected from a straight chain alkyl group, aryl group, allyl group or alkyl group having an amide group).